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Understanding cerebral palsy: the power of population-based surveillance

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Recognition that cerebral palsy (CP) includes disturbances of perception, cognition, communication, and behavior has resulted in studies examining autism spectrum disorders (ASDs) among children with CP. These studies have described a higher frequency than the general population[1,2] which may provide insight into shared etiological pathways, particularly given similar perinatal risk factors. The broad range of clinical characteristics of children with CP and ASD emphasizes their diverse resource needs. Early identification of co-occurring ASD can help direct supports to optimize functioning and social participation.

Data on the co-occurrence of CP and ASD are most useful when they are systematic and population-based. However, there are challenges for obtaining these data. At the population level, CP registers have differed in their methodology for ascertaining ASD. At the level of the individual child, there are challenges in diagnosing ASD among children with CP, particularly among those with more severe functional limitations.

Population-based CP surveillance systems are well-poised to describe the frequency of co-occurring conditions among children with CP. The study by Delobel-Ayoub et al. reported that 8.7% of children with CP had co-occurring ASD, ranging from 4.0% to 16.7% across five Surveillance of Cerebral Palsy in Europe (SCPE) registers. [2] SCPE utilizes a rigorous methodology to define CP, but registers within SCPE used different approaches for ASD case ascertainment. These methodological differences, coupled with variations in clinical awareness of ASD within the CP population, likely contributed to the differences across registers. Systematic ascertainment of ASD increases comparability of estimates of co-occurring ASD across registers and can allow data pooling to increase power for analyses. It is encouraging that registers that did not have systematic screening for ASD at the time of this study are enacting screening for future cohorts.

Delobel-Ayoub et al. observed a higher frequency of co-occurring CP and ASD among children who walked independently, as measured by the Gross Motor Function Classification System. This finding has been reported previously and is not entirely surprising.[1,2] There is a lack of established practice guidelines for evaluating children with

This commentary is on the original article by Delobel-Ayoub et al. on pages 738–742 of this issue.

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CP for ASD, and some ASD diagnostic tools cannot be used for children with no or severely limited walking ability and/ or sensory impairments.[3] Children with CP without intellectual disability also had a higher frequency of ASD than the general population. The multiple challenges for children with CP and severe motor, cognitive, and/or sensory impairments may obscure or overshadow the more subtle behavioral concerns characteristic of ASD, making early identification particularly difficult. These findings underscore the need for an improved clinical tool kit to identify ASD among children with significant functional limitations.

A strength of population-based CP surveillance programs is the ability to examine perinatal risk factors. Yet these programs are challenged by limited sample size, especially for analysis of sub-populations. Delobel-Ayoub et al.'s findings on the associations of CP and ASD co-occurrence with birthweight and gestational age were inconclusive. Similarly, data from the Autism and Developmental Disabilities Monitoring CP Network did not show a significant association between low birthweight and co-occurring ASD among children with CP.[4]

Goldsmith et al. reported that despite variability in methodologies, similarities exist in the aims, definitions, and data collected across international CP surveillance programs. [5] While birthweight and gestational age are among the most common data items collected across programs, ASD is not. If data on ASD are systematically included, harmonizing of data across international surveillance programs would afford markedly greater power to test hypotheses on shared risk factors.

Delobel-Ayoub et al.'s findings underscore the importance of (1) development and validation of ASD screening and diagnostic instruments for early and appropriate assessment of children with CP across the range of functional abilities; and (2) enhancement and harmonization of international surveillance data to further examine the prevalence and potential shared etiologies between ASD and CP. Further analyses of the associations between ASD prevalence, level of functioning, and perinatal factors among children with CP depend upon ensuring complete ascertainment of ASD.

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